

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/388,857	09/01/99	TRAN	L M122-878

021567 MM92/0509  
WELLS ST JOHN ROBERTS GREGORY AND MATKIN  
SUITE 1300  
601 W FIRST AVENUE  
SPOKANE WA 99201-3828

EXAMINER  
SCHILLINGER, L

ART UNIT 2813	PAPER NUMBER
------------------	--------------

DATE MAILED: 05/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/388,857

Applicant(s)

Tran

Examiner

Laura Schillinger

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☒ Responsive to communication(s) filed on Feb 27, 2001

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) 1-7 and 51-66 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-7 and 51-66 1-7 and 51-66 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements.

## Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some\* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_

20) ☐ Other: \_\_\_\_\_

Art Unit: 2813

## DETAILED ACTION

### *Claim Rejections - 35 U.S.C. § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-7 and 51-66 are rejected under 35 U.S.C. 102(e) as being anticipated by Forbes ('351).

In reference to claim 1, Forbes teaches a method comprising:

forming a plurality of shallow trench isolation regions received within a substrate, the regions define active areas, with some widths being no greater than 1 um, at least two being different (Fig.3 and Col.7, lines: 55-63);

forming a transistor gate line (wordline) over the active areas (Fig.4I (440) and Col.8, lines: 10-20), the transistor having different widths and voltages (Col.8, lines: 40-50).

In reference to claim 2, Forbes teaches wherein there is no separate channel implant (Col.7-8, lines: 64-14).

Art Unit: 2813

In reference to claim 3, Forbes teaches wherein the widths are less than one micron (Col.7, lines: 55-63).

In reference to claim 4, Forbes teaches wherein the threshold voltages are less than 2 volts (Col.10, lines: 35-65).

In reference to claim 5, Forbes teaches wherein the threshold voltages are less than one volt (Col.10, lines: 35-65).

In reference to claim 6, Forbes teaches wherein the widths are less than one micron and the threshold voltages are less than 2 v (Col.7, lines: 55-63 and Col.10, lines: 35-65).

In reference to claim 7, Forbes teaches wherein the widths are less than one micron and the threshold voltages are less than 1 v (Col.7, lines: 55-63 and Col.10, lines: 35-65)..

In reference to claim 51, Forbes teaches wherein one active area's width is less than 1 um (Col.7, lines: 55-63).

In reference to claim 54, Forbes teaches a method comprising:

Art Unit: 2813

forming a plurality of shallow trench isolation regions received within a substrate, the regions define active areas, with some widths being less than 1  $\mu\text{m}$ , at least two being different (Col.7, lines: 55-63);

forming a transistor gate line over the active areas (Fig.4I (440) and Col.8, lines: 10-20), the transistor having different widths and voltages (Col.8, lines: 40-50).

wherein the transistor with a lower threshold voltage has an active area with less than 1  $\mu\text{m}$  width (Col.7, lines: 55-63 and Col.10, lines: 35-65).

In reference to claim 55, Forbes teaches wherein the higher TV has an active area greater than 1  $\mu\text{m}$  (Col.7, lines: 55-63 and Col.10, lines: 35-65)...

In reference to claim 56, Forbes teaches wherein the higher TV has an active area less than 1  $\mu\text{m}$  (Col.7, lines: 55-63 and Col.10, lines: 35-65).

In reference to claim 57, Forbes teaches wherein one common channel implant is conducted (Col.7-8, lines: 64-14).

In reference to claim 58, Forbes teaches wherein the gate line comprises a common gate line formed over the active areas (Fig.4I (440) and Col.8, lines: 10-20).

Art Unit: 2813

In reference to claim 59, Forbes teaches wherein the gate line comprises a common gate line and the Ts are parallel (Fig.4I (440) and Col.8, lines: 10-20).

In reference to claim 60, Forbes teaches wherein the TV are less than 1 V (Col.10, lines: 35-65).

In reference to claim 61, Forbes teaches wherein the widths are less than 1  $\mu\text{m}$ , and the TV are less than 2 V (Col.7, lines: 55-63 and Col.10, lines: 35-65)..

In reference to claim 62, Forbes teaches wherein the widths are less than 1  $\mu\text{m}$  and the TV are less than 1 V (Col.7, lines: 55-63 and Col.10, lines: 35-65)..

In reference to claim 63, Forbes teaches a method comprising:

forming a plurality of shallow trench isolation regions received within a substrate, the regions define active areas, with some widths being less than 1  $\mu\text{m}$ , at least two being different (Fig. 3 and Col.7, lines: 55-63).;

forming a transistor gate line over the active areas, the transistor having different widths and voltages less than 2 V (Col.7, lines: 55-63 and Col.10, lines: 35-65)., no channel implant (Col.7-8, lines: 64-14); and

wherein the transistor with a lower threshold voltage has an active area with less than 1  $\mu\text{m}$  width (Col.7, lines: 55-63 and Col.10, lines: 35-65).

Art Unit: 2813

In reference to claim 64, Forbes teaches wherein the two widths are less than 1  $\mu\text{m}$  (Col.7, lines: 55-63).

In reference to claim 65, Forbes teaches wherein the TV are less than 1  $\text{v}$  (Col.10, lines: 35-65)..

In reference to claim 66 Forbes teaches wherein the two widths are less than 1  $\mu\text{m}$ , and TVs are less than 1  $\text{v}$  (Col.7, lines: 55-63 and Col.10, lines: 35-65)..

***Claim Rejections - 35 U.S.C. § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Forbes ('351).

In reference to claim 52 and 53, Forbes fails to explicitly teach forming 3 transistors each have a different threshold voltage. However, it would have been obvious to one of ordinary skill in the art to fabricate additional transistors in order to create additional read/write capabilities for the memory cell which function the same way disclosed by Forbes.

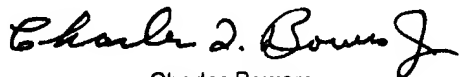
Art Unit: 2813

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Forbes ('014) teaches a similar method.

6. Any inquiry concerning this communication from examiner should be directed to Laura Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached by telephone on Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Bowers, can be reached on (703) 308-2417. The fax phone number for the group is (703) 308-7722.



Charles Bowers

**Supervisory Patent Examiner**  
Technology Center 2800

LMS

May 3, 2001